

1

HEAD-MOUNTED DISPLAY**CROSS-REFERENCE TO RELATED APPLICATIONS**

This application claims the benefit of prior filed U.S. Provisional Patent Application No. 60/927,624, filed May 4, 2007, which is incorporated by reference herein in its entirety.

BACKGROUND OF THE INVENTION

This invention is directed to a display for video that is mounted to a user's head.

Users of electronic devices may view media on different types of screens. For example, users may view media on a screen integrated in the electronic device (e.g., view media on the display screen of a personal electronic device, for example the iPod™ available by Apple Inc. of Cupertino, Calif.). As another example, users may couple the electronic device to a separate display and direct the display to provide the media. For example, users may couple a computer to a screen and display media on the computer screen. As another example, users may direct a television to display media streamed or downloaded from an electronic device (e.g., using an Apple TV™ available by Apple Inc. of Cupertino, Calif. to display content from a user's computer on a television).

For users who wish to view media provided by an electronic device when they are away from their homes and away from their television and computer screens (e.g., users traveling), integrated displays may be limiting. Such users may instead desire a personal display system with which the user may appear to view media on a large display (e.g., on a home television) while in fact using a portable display system. Such users may also desire a personal display that is visible only to the user (e.g., for viewing private or sensitive content).

Accordingly, there is a need for a personal display system with which users can privately view media provided by an electronic device. In particular, there is a need for a head-mounted display for allowing users to view media.

SUMMARY OF THE INVENTION

A system for providing a personal display for viewing media provided by an electronic device is provided.

A personal goggle system for presenting a personal display of media is provided. The goggle system may include an outer cover, a frame and a display generation component. To enhance the appearance and aesthetic appeal of the goggle system, the outer cover and frame may be designed to resemble ski or motorcycle goggles (e.g., covering only the user's eyes, with a foam layer against the user's face).

In some embodiments, the outer layer may include one or more surfaces covering the frame. The surfaces may be curved or flat, and may include one or more features for customizing or enhancing the appearance of the outer cover. For example, the outer layer may include a curved surface on which a graphic or design may be painted, fixed (e.g., a sticker), carved, sculpted, molded, or embedded using any other suitable process. To further customize or personalize the goggle system, the outer cover may be removable and replaceable (e.g., for a user to change the appearance of the goggle system at different times).

The goggle frame may be constructed from one or several components. For example, the goggle frame may include at least one of a mid-frame or spacer, an inner cover, and a mounting frame. The frame may include one or more features operative to receive the outer cover (e.g., a surface against

2

which the outer cover is glued, or a catch mechanism for engaging the outer cover). The mid-frame may form the structural component to which the remaining components of the goggle system are coupled. For example, the inner cover, which may support the mounting frame (which in turn may support the display generation component) may be coupled to the mid-frame. The mid-frame and outer cover may be constructed from any suitable material, including for example from a flexible material operative to bend or flex to match the shape of a user's face.

The goggle system may include any suitable display generation component. For example, the goggle system may include two display generation components operative to provide the displayed images for each eye. In some embodiments, the display generation components may be moved relative the goggle frame to be placed opposite the user's eyes (e.g., move or tilt the display generation components to align them with the user's eyes). The display generation components may be operative to provide different images for each eye. For example, the components may offset the images to give the user the illusion of viewing media in three dimensions. As another example, the components may provide different images for each eye based on the eyesight corrections needed by the user (e.g., change the focus to reflect an eyesight prescription). In some embodiments, the display generation components may provide the displayed images on a lens coupled to the frame (e.g., attached to the inner cover).

The goggle system may include a foam layer adjacent the frame that rests against the user's face. The foam may serve to prevent ambient light from entering the goggle system and affecting the images displayed on the lens. The foam layer may be formed from any suitable compressible material, including for example different types of foam or flock. In some embodiments, the foam may be more compressible in regions where a user's eyeglasses contact the frame to enhance the comfort of the goggle system.

BRIEF DESCRIPTION OF THE DRAWINGS

The above and other features of the present invention, its nature and various advantages will be more apparent upon consideration of the following detailed description, taken in conjunction with the accompanying drawings in which:

FIG. 1 is an exploded view of a goggle system for providing a personal display of media in accordance with one embodiment of the present invention;

FIG. 2 is a perspective view of the goggle system of FIG. 1 when it is assembled in accordance with one embodiment of the invention;

FIG. 3 is a side view of the goggle system of FIG. 2 in accordance with one embodiment of the invention;

FIG. 4 is a top view of the goggle system of FIG. 2 in accordance with one embodiment of the invention;

FIG. 5 is a rear view of the goggle system of FIG. 2 in accordance with one embodiment of the invention;

FIG. 6 is a perspective view of an outer cover used in a goggle system in accordance with one embodiment of the invention;

FIG. 7A is a perspective view of a goggle system on a user's head in accordance with one embodiment of the invention;

FIG. 7B is a rear perspective view of a goggle system on a user's head in accordance with one embodiment of the invention;

FIG. 7C is a front view of a goggle system on a user's head in accordance with one embodiment of the invention;